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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/628,693

07/28/2003

Luc Struye

27500-169

5166

7590

03/28/2006

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EXAMINER

SUNG, CHRISTINE

ART UNIT

PAPER NUMBER

2884

DATE MAILED: 03/28/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/628,693

Applicant(s)

STRUYE ET AL.

Examiner

Christine Sung

Art Unit

2884

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 08 December 2005.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-44 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-44 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 July 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- ☒ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_.

***Response to Amendment***

1. The amendment filed on December 8, 2005 has been accepted and entered.

***Information Disclosure Statement***

2. The information disclosure statement filed 7/28/20003 fails to comply with 37 CFR 1.98(a)(2), which requires a legible copy of each cited foreign patent document; each non-patent literature publication or that portion which caused it to be listed; and all other information or that portion which caused it to be listed. It has been placed in the application file, but the information referred to therein has not been considered.

Copies of the "Other Documents" that we cited on the IDS were not provided.

Further copies of references EP 0803554 A1 and EP 01347023 A1 were enclosed but were not cited on the IDS.

***Claim Objections***

3. Claim 2 is objected to because of the following informalities: Claim 2 states, "wherein said intermediate layer arrangement comprises an x-ray absorbing layer, wherein as a lead compound an oxide or hydroxide of lead metal is dispersed in a binder," and therefore has a grammatical error. The examiner assumes that the x-ray absorbing layer comprises a lead compound, an oxide or a hydroxide of lead metal, dispersed in a binder. The binder is a matrix of poly condensation product of a metal alkoxide species. Appropriate correction is required.

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. Claims 1-5, 11, 13, 15, 17, 19, 21, 23, 25 and 27 rejected under 35 U.S.C. 103(a) as being unpatentable over Kano et al. (US Patent 5,012,107A) in view of Tsuchiya (JP 408114897A).

Regarding claims 1 and 5, Kano discloses a stimuable phosphor screen or panel (figure 1) comprising a phosphor layer (figure 1, element 2) and a support (figure 1, element 1) characterized in that an intermediate layer arrangement (Figure 1, elements 3 and 4) of a light shielding layer (figure 1, element 3) and, farther from the support (see figure 1), a stimulated light reflecting foil or light scattering foil (figure 1, element 4) is present between said support and said phosphor layer (see figure 1). Kano specifies the claimed layering structure and functions of the structure but does not specify that the light-shielding layer is an X-ray absorbing foil, however, Tsuchiya discloses an x-ray detection device with a substrate (element 1), a lead foil (element 2) and a phosphor (element 3). One of ordinary skill in the art would be motivated to use the lead foil as disclosed by Tsuchiya with the invention as disclosed by Kano in order to reduce scattering and increase detection efficiency (see abstract of Tsuchiya).

Regarding claims 2-4, Tsuchiya discloses that the foil is made of lead but does not specify the exact compositions as claimed. However, lead cannot be applied directly to the substrate or device without a binder/matrix as it would not adhere to the surface and if applied directly would cause cracking and other unwanted results. Further the materials claimed are commonly used matrix materials, therefore one of ordinary skill in the art would be motivated to use such matrix materials with the invention as disclosed by Kano in view of Tsuchiya in order to increase compatibility of the layers by controlling the matrix composition. (see pertinent art: Robinette discloses a conventional lead oxide screen used with x-ray devices (abstract) and discloses the absorbing layer is made of a lead oxide dispersed in a binder).

Regarding claim 11, Kano discloses a phosphor screen or panel according to claim 1 (see above), and further discloses that the support is selected from the group consisting of ceramics, glass, metals such as aluminum and polymeric films (column 5, lines 8-23).

Regarding claims 13 and 15, Kano discloses a phosphor screen or panel according to claims 1 and 11, respectively (see above), wherein said intermediate layer arrangement has a surface that has been subjected to embossing for forming a fine concavo-convex pattern (column 7, lines 35-37).

Regarding claims 17, 19, 21, 23, 25 and 27, Kano discloses the limitations set forth in claims 1 and 11, and further discloses a two or more protective layers (column 8, lines 22-27). Although he does not specify the exact positioning of the layer as disclosed in the instant claims, it would have obvious to one having ordinary skill in the art to have used a protective layer between the substrate and intermediate layers and/or between the phosphor and the intermediate

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layers in order to decrease the likelihood of damage from moisture exposure to the various layers of the detector.

7. Claims 6, 7-10, 12, 14, 16, 18, 20, 22, 24, 26 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kano (US Patent 5,012,107 A) in view of Tsuchiya (JP 408114897A) further in view of Silversher (US Patent 2,928,948 A).

Regarding claims 6-10, Kano in view of Tsuchiya discloses a stimuable phosphor screen or panel according to claim 14 (see above), and Kano further discloses that the light reflecting material is made from a material that reflects stimulating light (column 6, lines 39-46). Kano does not specify that the light-reflecting layer is made of aluminum. However, light reflecting layers made of aluminum are well known in the art as disclosed by Silversher (Figure 1, element 11). Aluminum provides a means for efficiently reflecting light, which increases the light collecting efficiency of the stimuable phosphor panel. One of ordinary skill in the art would be motivated to use the aluminum layer as disclosed by Silversher with the invention as disclosed by Kano in view of Tsuchiya in order to efficiently collect stimulated and emitted light.

Regarding claim 12, Kano further discloses that the support is selected from the group consisting of ceramics, glass, metals such as aluminum and polymeric films (column 5, lines 8-23).

Regarding claims 14 and 16, Kano wherein said intermediate layer arrangement has a surface that has been subjected to embossing for forming a fine concavo-convex pattern (column 7, lines 35-37).

Regarding claims 18, 20, 22, 24, 26 and 28, Kano further discloses a two or more protective layers (column 8, lines 22-27). Although he does not specify the exact positioning of

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the layer as disclosed in the instant claims, it would have obvious to one having ordinary skill in the art to have used a protective layer between the substrate and intermediate layers and/or between the phosphor and the intermediate layers in order to decrease the likelihood of damage from moisture exposure to the various layers of the detector.

8. Claims 29, 31, 33, 35, 37, 39, 41 and 43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kano (US Patent 5,012,107 A) in view of Tsuchiya (JP 408114897A) further in view of Homme (US Pre Grant Publication 2004/0000644 A1).

Regarding claims 29 and 31, Kano in view of Tsuchiya discloses the limitations set forth in claim 1 and 11, respectively, but does not specify that the phosphor is a binderless phosphor having needle shaped crystals. Homme discloses a radiation detection panel with a stimulable phosphor that has needle shaped crystals (figure 5, element 10a). One of ordinary skill in the art would be motivated, at the time the invention was made to have used the needle shaped crystals as disclosed by Homme with the invention as disclosed by Kano in order to reduce lateral spreading of the detected radiation and thereby increase the efficiency and accuracy of the detected radiation.

Regarding claim 33, 35, 37, 39, 41 and 43 Homme further discloses that the needle shaped phosphor crystals are made of an alkali metal phosphor, CsBr:Eu (Page 4, paragraph 49).

9. Claims 30, 32, 34, 36, 38, 40, 42 and 44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kano (US Patent 5,012,107 A) in view of Tsuchiya (JP 408114897A) further in view of Silversher (US Patent 2,928,948 A) further in view of Homme (US Pre Grant Publication 2004/0000644 A1).

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Regarding claims 30 and 32, Kano discloses the limitations set forth in claims 6 and 12, respectively, but does not specify that the phosphor is a binderless phosphor having needle shaped crystals. Homme discloses a radiation detection panel with a stimulable phosphor that has needle shaped crystals (figure 5, element 10a). One of ordinary skill in the art would be motivated, at the time the invention was made to have used the needle shaped crystals as disclosed by Homme with the invention as disclosed by Kano in order to reduce lateral spreading of the detected radiation and thereby increase the efficiency and accuracy of the detected radiation.

Regarding claim 34, 36, 38, 40, 42 and 44, Homme further discloses that the needle shaped phosphor crystals are made of an alkali metal phosphor, CsBr:Eu (Page 4, paragraph 49).

### ***Response to Arguments***

10. Applicant's arguments, filed December 8, 2005, with respect to the rejection(s) of claim(s) 1-44 have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Kano in view of Tsuchiya. (see above).

### ***Conclusion***

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- a. US Patent 5,091,928 A- Robinette discloses a conventional lead oxide screen used with x-ray devices (abstract) and discloses the absorbing layer is made of a lead oxide dispersed in a binder.



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- b. US Patent 4,380,702 A - this reference discloses a conventional radiation detector with various phosphor/reflecting layer configurations.
- c. US Patent 6,339,224 N1- this reference discloses a detector with the following configuration: a support, lead layer, phosphor layer and a protective layer.
- d. US Pre Grant Publication 2005/0023458 A1- a commonly assigned application.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christine Sung whose telephone number is 571-272-2448. The examiner can normally be reached on Monday- Friday 7-3 pm.

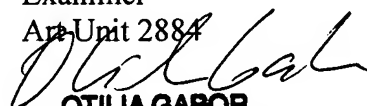
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Porta can be reached on 571-272-2444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

CS

Christine Sung  
Examiner

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**OTILIA GABOR**  
**PRIMARY EXAMINER**